

Missouri Department of Natural Resources

Total Maximum Daily Load Information Sheet

Saline Creek

Waterbody Segment at a Glance:

County: Jefferson
Nearby Cities: Arnold
Length of impairment: 3.2 miles
Pollutants: Biochemical Oxygen Demand (BOD) and Ammonia (NH₃-N)
Sources: Ron Rog and Hwy 141 Sewage Treatment Plants (Northeast Sewer District)



State map showing location of watershed

TMDL Priority Ranking: TMDL approved 2001

Description of the Problem

Beneficial uses of Saline Creek

- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life
- Protection of Human Health associated with Fish Consumption

Use that is impaired

- Protection of Warm Water Aquatic Life

Standards that apply

- The Missouri Water Quality Standard, found at 10 CSR 20-7.031 Table A, for dissolved oxygen (related to Biochemical Oxygen Demand) in streams is 5.0 milligrams per liter (mg/L) or the natural dissolved oxygen profile of the stream, whichever is lower.
- Ammonia (NH₃-N) standards vary depending on the pH and the temperature. The recommended ammonia limits for these facilities (at a pH of 7.8) are 2.0 mg/L for summer and 3.3 mg/L during the winter.

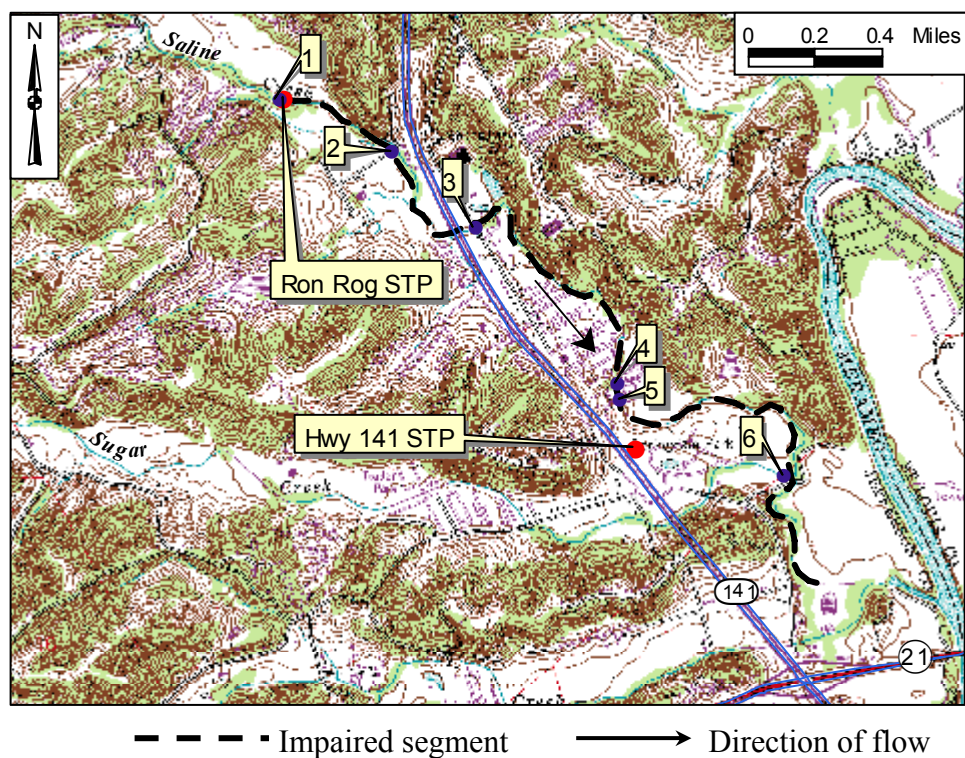
Background Information and Water Quality Data

The wastewater from the Ron Rog and Hwy 141 sewage treatment plants (STP) is high in BOD (Biochemical Oxygen Demand), which lowers the oxygen in the stream. Most aquatic organisms require high levels of oxygen to survive. In addition, ammonia is a common by-product of wastewater treatment and, under certain conditions, can be toxic to aquatic life.

Missouri Department of Natural Resources conducted a water quality study on this creek in August and September 1992 and again in July 1995. These showed low levels of dissolved oxygen (unhealthy for aquatic life) below both treatment plants, with the lowest dissolved oxygen levels below the Ron Rog plant. Ammonia levels throughout the study area were as high as 6 milligrams per liter (mg/L). In the September portion of the study, the effluent from both plants was found to be improved, as was instream water quality, but the stream was still not good enough to protect aquatic life.

Due to these problems of chronic non-compliance with state water quality standards, the TMDL requires discharge of all wastewater from both these wastewater treatment plants to be removed from the Saline Creek watershed. The U.S. Environmental Protection Agency approved this TMDL on Jan. 12, 2001. The permits were renewed in December 2001 with the new requirements included. Construction to move these discharges to the Meramec River is presently underway. A map and graphs summarizing the data may be found below.

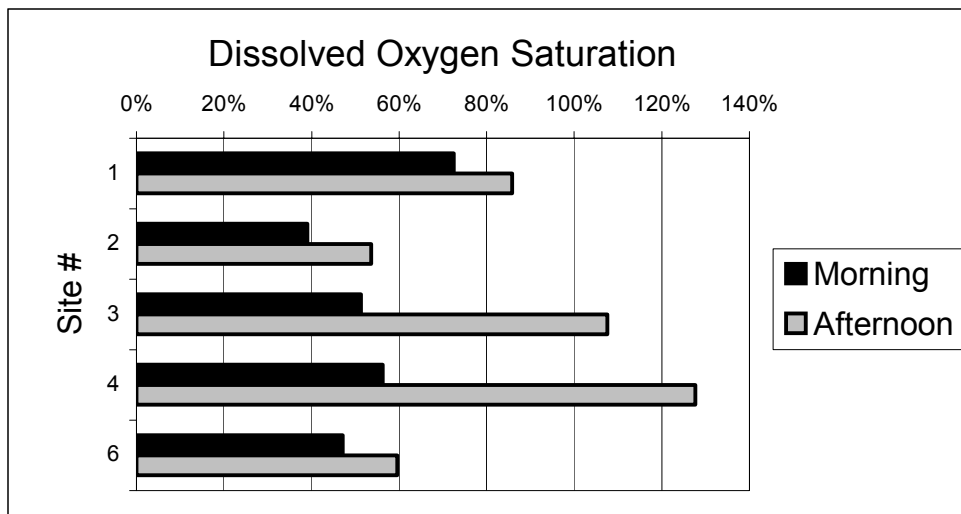
Impaired Segment of Saline Creek in Jefferson County, Missouri, Showing Sampling Sites and Sewage Treatment Plants



Site Legend

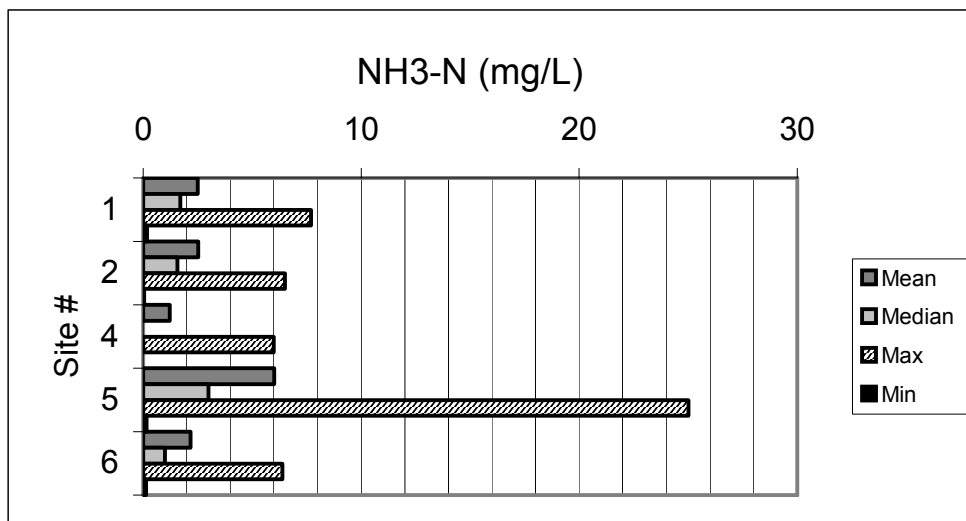
- 1 – Saline Creek 20 yards below Ron Rog WWTP
- 2 – Saline Creek 0.4 mile below Ron Rog WWTP
- 3 – Saline Creek 0.9 mile below Ron Rog WWTP
- 4 – Saline Creek just above Hwy 141 WWTP
- 5 – Hwy 141 WWTP effluent
- 6 – Saline Creek 0.7 mile below Hwy 141 WWTP

**Average Dissolved Oxygen Saturation at sample sites on Saline Creek.
Samples taken in August and September, 1992, and July, 1995.**



Source: Missouri Dept. of Natural Resources.

**Ammonia Nitrogen (NH₃-N) levels at sample sites in Saline Creek.
Samples taken in August and September, 1992, and July, 1995.**



Source: Missouri Dept. of Natural Resources

Ammonia standards vary depending on the pH and the temperature. The recommended ammonia limits for these STPs (at a pH of 7.8) is 2.1 mg/L for summer and 3.3 mg/L during the winter.

For more information call or write:

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